

Commenced Publication in 1973

Founding and Former Series Editors:

Gerhard Goos, Juris Hartmanis, and Jan van Leeuwen

Editorial Board

David Hutchison

Lancaster University, Lancaster, UK

Takeo Kanade

Carnegie Mellon University, Pittsburgh, PA, USA

Josef Kittler

University of Surrey, Guildford, UK

Jon M. Kleinberg

Cornell University, Ithaca, NY, USA

Friedemann Mattern

ETH Zurich, Zurich, Switzerland

John C. Mitchell

Stanford University, Stanford, CA, USA

Moni Naor

Weizmann Institute of Science, Rehovot, Israel

C. Pandu Rangan

Indian Institute of Technology, Madras, India

Bernhard Steffen

TU Dortmund University, Dortmund, Germany

Demetri Terzopoulos

University of California, Los Angeles, CA, USA

Doug Tygar

University of California, Berkeley, CA, USA

Gerhard Weikum

Max Planck Institute for Informatics, Saarbrücken, Germany

More information about this series at <http://www.springer.com/series/8637>

Abdelkader Hameurlain · Josef Küng
Roland Wagner · Tran Khanh Dang
Nam Thoai (Eds.)

Transactions on Large-Scale Data- and Knowledge- Centered Systems XXXVI

Special Issue on Data
and Security Engineering

Editors-in-Chief

Abdelkader Hameurlain
IRIT, Paul Sabatier University
Toulouse
France

Roland Wagner
FAW, University of Linz
Linz
Austria

Josef Küng
FAW, University of Linz
Linz
Austria

Guest Editors

Tran Khanh Dang
Ho Chi Minh City University of Technology
Ho Chi Minh City
Vietnam

Nam Thoai
Ho Chi Minh City University of Technology
Ho Chi Minh City
Vietnam

ISSN 0302-9743 ISSN 1611-3349 (electronic)
Lecture Notes in Computer Science
ISSN 1869-1994 ISSN 2510-4942 (electronic)
Transactions on Large-Scale Data- and Knowledge-Centered Systems
ISBN 978-3-662-56265-9 ISBN 978-3-662-56266-6 (eBook)
<https://doi.org/10.1007/978-3-662-56266-6>

Library of Congress Control Number: 2017960854

© Springer-Verlag GmbH Germany 2017, corrected publication 2018

This work is subject to copyright. All rights are reserved by the Publisher, whether the whole or part of the material is concerned, specifically the rights of translation, reprinting, reuse of illustrations, recitation, broadcasting, reproduction on microfilms or in any other physical way, and transmission or information storage and retrieval, electronic adaptation, computer software, or by similar or dissimilar methodology now known or hereafter developed.

The use of general descriptive names, registered names, trademarks, service marks, etc. in this publication does not imply, even in the absence of a specific statement, that such names are exempt from the relevant protective laws and regulations and therefore free for general use.

The publisher, the authors and the editors are safe to assume that the advice and information in this book are believed to be true and accurate at the date of publication. Neither the publisher nor the authors or the editors give a warranty, express or implied, with respect to the material contained herein or for any errors or omissions that may have been made. The publisher remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

Printed on acid-free paper

This Springer imprint is published by Springer Nature
The registered company is Springer-Verlag GmbH, DE
The registered company address is: Heidelberger Platz 3, 14197 Berlin, Germany

Preface

The 3rd International Conference on Future Data and Security Engineering (FDSE) and the 10th International Conference on Advanced Computing and Applications (ACOMP) were held in Can Tho City, Vietnam, during November 23–25, 2016. FDSE is an annual international premier forum designed for researchers and practitioners interested in state-of-the-art and state-of-the-practice activities in data, information, knowledge, and security engineering to explore cutting-edge ideas, present and exchange their research results and advanced data-intensive applications, as well as to discuss emerging issues on data, information, knowledge, and security engineering. ACOMP annual events focus on advanced topics in computer science and engineering. More specifically, ACOMP 2016 solicited papers about security, information systems, software engineering, enterprise engineering, embedded systems, high performance computing, image processing, visualization, and other related fields.

We encouraged the submission of both original research contributions and industry papers. FDSE 2016 received 115 submissions and, after a careful review process, only 29 papers (27 full and 2 short ones) were selected for presentation. The call for papers of ACOMP 2016 resulted in the submissions of a total of 61 papers, out of which we selected only 22 papers for presentation, following a rigorous review process.

Among the great papers of both FDSE and ACOMP 2016, we selected 9 papers to invite the authors to revise, extend, and resubmit for publication in this special issue. At the end, only 8 extended papers were accepted. The main focus of this special issue is on advanced computing issues in data and security engineering, as well as their promising applications.

The big success of FDSE and ACOMP 2016, as well as this special issue of TLDKS, was the result of the efforts of many people, to whom we would like to express our gratitude. First, we would like to thank all authors who extended and submitted papers to this special issue. We would also like to thank the members of the committees and external reviewers for their timely reviewing and lively participation in the subsequent discussion in order to select the high-quality papers published in this issue. Finally, yet importantly, we thank Gabriela Wagner for her enthusiastic help and support during the whole process of preparation for this publication.

October 2017

Tran Khanh Dang
Nam Thoai

The original version of the book Frontmatter was revised: a subtitle has been added in the Title page. The erratum to the book Frontmatter is available at https://doi.org/10.1007/978-3-662-56266-6_9

Organization

Editorial Board

Reza Akbarinia	Inria, France
Bernd Amann	LIP6 - UPMC, France
Dagmar Auer	FAW, Austria
Djamal Benslimane	Lyon 1 University, France
Stéphane Bressan	National University of Singapore, Singapore
Francesco Buccafurri	Università Mediterranea di Reggio Calabria, Italy
Mirel Cosulschi	University of Craiova, Romania
Dirk Draheim	University of Innsbruck, Austria
Johann Eder	Alpen Adria University Klagenfurt, Austria
Georg Gottlob	Oxford University, UK
Anastasios Gounaris	Aristotle University of Thessaloniki, Greece
Theo Härder	Technical University of Kaiserslautern, Germany
Sergio Ilarri	University of Zaragoza, Spain
Petar Jovanovic	Univ. Politècnica de Catalunya, BarcelonaTech, Spain
Dieter Kranzlmüller	Ludwig-Maximilians-Universität München, Germany
Philippe Lamarre	INSA Lyon, France
Lenka Lhotská	Technical University of Prague, Czech Republic
Liu Lian	University of Kentucky, USA
Vladimir Marik	Technical University of Prague, Czech Republic
Jorge Martinez Gil	Software Competence Center Hagenberg, Austria
Franck Morvan	Paul Sabatier University, IRIT, France
Kjetil Nørvåg	Norwegian University of Science and Technology, Norway
Themis Palpanas	Paris Descartes University, France
Torben Bach Pedersen	Aalborg University, Denmark
Günther Pernul	University of Regensburg, Germany
Soror Sahri	LIPADE, Paris Descartes University, France
Klaus-Dieter Schewe	University of Linz, Austria
David Taniar	Monash University, Australia
A Min Tjoa	Vienna University of Technology, Austria
Shaoyi Yin	Paul Sabatier University, Toulouse, France

Reviewers

Tran Khanh Dang	HCMC University of Technology, VNUHCM, Vietnam
Dirk Draheim	Tallinn University of Technology, Estonia
Van Quoc Phuong	FAW, Johannes Kepler University Linz, Austria
Huynh	
Thanh-Van Le	HCMC University of Technology, VNUHCM, Vietnam
Van Doan Nguyen	Japan Advanced Institute of Science and Technology, Japan

Viet Hung Nguyen	Bosch, Vietnam, and Trento University, Italy
Le Minh Sang Tran	Trento University, Italy
Minh Quang Tran	HCMC University of Technology, VNUHCM, Vietnam
Ngoc Thinh Tran	HCMC University of Technology, VNUHCM, Vietnam
Anh Truong	HCMC University of Technology, VNUHCM, Vietnam, and Trento University, Italy
Hoang Tam Vo	IBM Research, Australia

Contents

Risk-Based Privacy-Aware Access Control for Threat Detection Systems	1
<i>Nadia Metoui, Michele Bezzi, and Alessandro Armando</i>	
Systematic Digital Signing in Estonian e-Government Processes: Influencing Factors, Technologies, Change Management	31
<i>Ingrid Pappel, Ingmar Pappel, Jaak Tepandi, and Dirk Draheim</i>	
Towards a Fine-Grained Privacy-Enabled Attribute-Based Access Control Mechanism	52
<i>Que Nguyet Tran Thi and Tran Khanh Dang</i>	
One-Class Collective Anomaly Detection Based on LSTM-RNNs	73
<i>Ngà Nguyen Thi, Van Loi Cao, and Nhien-An Le-Khac</i>	
Multihop Wireless Access Networks for Flood Mitigation Crowd-Sourcing Systems	86
<i>Quang Tran Minh and Michel Toulouse</i>	
Assessment of Aviation Security Risk Management for Airline Turnaround Processes	109
<i>Raimundas Matulevičius, Alex Norta, Chibuzor Udokwu, and Rein Nõukas</i>	
Scalable Automated Analysis of Access Control and Privacy Policies	142
<i>Anh Truong, Silvio Ranise, and Thanh Tung Nguyen</i>	
Partitioning-Insensitive Watermarking Approach for Distributed Relational Databases	172
<i>Sapana Rani, Dileep Kumar Koshley, and Raju Halder</i>	
Erratum to: Transactions on Large-Scale Data- and Knowledge-Centered Systems XXXVI	E1
<i>Abdelkader Hameurlain, Josef Küng, Roland Wagner, Tran Khanh Dang, and Nam Thoai</i>	
Author Index	193